

## **ABSTRACT OF THE DISCLOSURE**

Disclosed are monolithic bioelectronic devices comprising a bioreporter and an  
5 OASIC. These bioluminescent bioreporter integrated circuit are useful in detecting substances such as pollutants, explosives, and heavy-metals residing in inhospitable areas such as groundwater, industrial process vessels, and battlefields. Also disclosed are methods and apparatus for detection of particular analytes, including ammonia and estrogen compounds.

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